



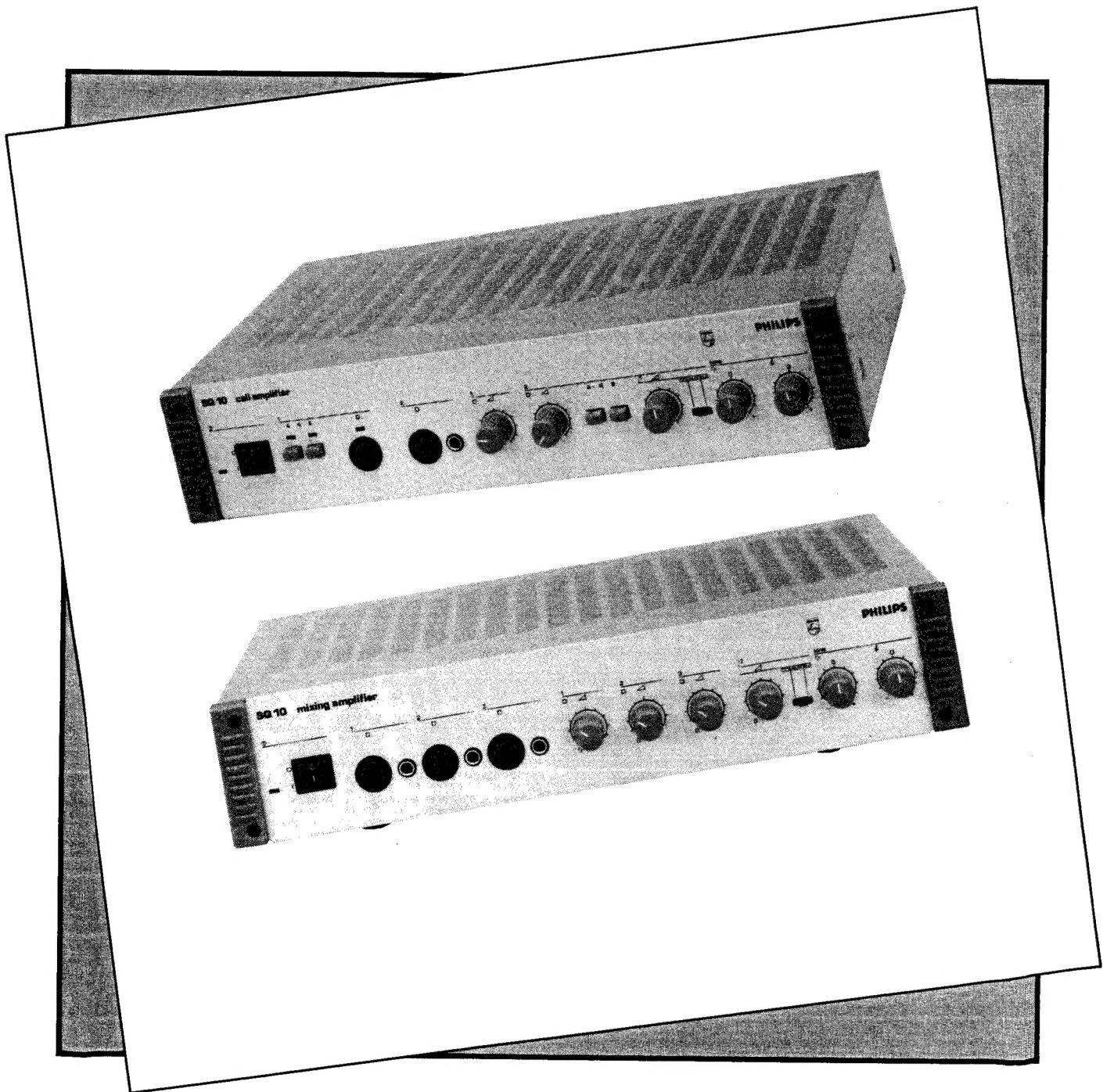
PHILIPS

SQ10 AMPLIFIERS

LBB 1211 LBB1212 LBB1213

LBB 1216 LBB1217

Service Manual



4822 733 24383
890626

**CUSTOMER
SUPPORT**

SQ10 AMPLIFIERS

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SQ10 AMPLIFIERS

- Inputs
microphones: 1.5 mV, 2 kOhm
CD: 200 mV, 47 kOhm
AUX: 100 mV, 22 kOhm
Tape in: 100 mV, 22 kOhm
Tape out: 350 mV, 5 kOhm

SQ10 AMPLIFIERS

4. SPARE PARTS

| Description: | Code Number: |
|-----------------------|----------------|
| DIN socket | 5322 267 40832 |
| Jack socket | 5322 267 40831 |
| Potmeter 50K lin 0.1W | 5322 101 40148 |
| Potmeter 50K log 0.1W | 5322 101 50277 |
| Turning knob | 5322 414 30152 |
| Power switch | 5322 277 11136 |
| Output connector | 5322 267 40833 |
| Power transformer 30W | 5322 140 60291 |
| Power transformer 60W | 5322 140 60292 |
| Transistor 2SD613E | 4822 130 41577 |
| Transistor 2SC3281 | 4822 130 42227 |
| Fuse 5A fast | 5322 253 40055 |
| Fuse 8A fast | 5322 253 40034 |
| Fuse 1A slow | 4822 253 30021 |
| Fuse 1.6A slow | 4822 253 30024 |
| Relay SCLD-P4 | 5322 280 80603 |
| Relay SCLB-P2 | 5322 280 80602 |
| Switch S101 | 5322 273 20314 |
| Switch S101-105 | 5322 273 50301 |
| Push button knob | 5322 414 20271 |
| Fan | 5322 361 10519 |

SQ10 AMPLIFIERS

1.

GENERAL

The SQ10 series of amplifiers are suitable for various PA applications. The amplifiers can operate either on 110/127/220 or 240V, 50-60Hz AC supply or on +24V DC supply as standby power.

2.

TYPE NUMBERS

The SQ10 range of amplifiers consists of following type numbers:

- LBB 1211/00 30W mixing amplifier
- LBB 1212/00 60W mixing amplifier
- LBB 1213/00 120W mixing amplifier
- LBB 1216/00 30W call amplifier
- LBB 1217/00 60W call amplifier

3.

TECHNICAL DATA

3.1

MECHANICAL

3.1.1

Inputs

- Call amplifiers LBB 1216 and LBB 1217
- 1 microphone input with chime and priority muting channel 2 and 3
- 1 microphone input
- 1 compact disk input
- 1 auxiliary input
- 1 tape recorder input
- 1 tape recorder output

The microphone inputs are 5-pole lockable DIN sockets with a parallel 6.3 mm jack socket for input 2.

The music inputs are cinch sockets with 2 sockets for each input.

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213
- 1 microphone input with priority muting channel 2, 3 and 4
- 2 microphone inputs
- 1 compact disk input
- 1 auxiliary input
- 1 tape recorder input
- 1 tape recorder output

The microphone inputs are 5-pole lockable DIN sockets with a parallel 6.3 mm jack socket for each input.

The music inputs are cinch sockets with 2 sockets for each input.

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3.1.2 Outputs

- Call amplifiers LBB 1216 and LBB 1217
- Main output
- two selectable music/call and call only output groups
- music only output

All output connections are provided at the rear panel and are free from earth.

- Mixing amplifiers LBB 1211, LBB1212 and LBB 1213
- Outputs for 8 Ohm, 50V, 70V and 100V are provided at the rear panel and are free from earth.

3.1.3 Switches

- Call amplifiers LBB 1216 and LBB 1217
- Mains switch: a on/off push button provided on the front panel
- Channel select: a 3 position slide switch on the front panel
- Output group select: 2 push buttons on the front panel
- Music select: 2 push buttons on the front panel

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213
- Mains switch: a on/off push button provided on the front panel
- Channel 4 switch: a 3 position slide switch on the front panel

3.1.4 Indications

- Call amplifiers LBB 1216 and LBB 1217
- a green LED for power on indication
- 2 yellow LED's for output group selection indication
- a red LED for microphone on indication

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213
- a green LED for power on indication

3.2 ELECTRICAL

- Mains: the amplifiers can operate on 110, 127, 220 and 240 V
+/- 10% 50- 60 Hz
- DC supply: rated DC supply 0, +24 V +/- 10%. the amplifier is protected against reversal connection of the supply.
- Fuses:

| | | | |
|-------|------|-----------|-----------|
| | DC | 110/127 V | 220/240 V |
| 30 W | T5A | T2A | T1A |
| 60 W | T8A | T3.15A | T1.6A |
| 120 W | T10A | T5A | T2.5A |

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A thermal fuse is provided inside the mains transformer to prevent overheating of the mains transformer.

- Rated output power

60 W amplifiers: mains: at THD = 5% Pout \Rightarrow 60 W acc. to IEC268
DC: at THD = 5% Pout \Rightarrow 30 W acc. to IEC268

30 W amplifiers: mains: at THD = 5% Pout \Rightarrow 30 W acc. to IEC 268
DC: at THD = 5% Pout \Rightarrow 15 W acc. to IEC 268

120 W amplifiers: mains: at THD = 5% Pout \Rightarrow 120 W acc. to IEC 268
DC: at THD = 5% Pout \Rightarrow 60 W acc. to IEC 268

- Rated temperature limited output power:

acc. to IEC 65; at 220 V + 10%, Tamb = 45 degr.C. 1/8 of rated output power.

- Maximum output voltage at unloaded 100 V tap:
distortion 5%, output voltage \leq 150 V at 1000 Hz.

- Frequency response:

With tone control flat and measured at 10 dB below rated output power: within +1/-3 dB between 60 Hz and 12.5 kHz.

Speech filter: high pass filter -3 dB +1/-2 dB at 315 Hz and a slope of 6 dB/octave.

- Power bandwidth:

at 5% distortion power bandwidth: 150 Hz - 12 kHz (-3dB).

- Distortion: total harmonic distortion at rated output power at 1 kHz less than 5% at all taps with appropriate loads:

LBB 1211/00

| tap: | output (mains) | output (DC) | rated load |
|-------|----------------|-------------|------------|
| 100 V | 100 V | 85 V | 333 Ohm |
| 70 V | 70 V | 60 V | 163 Ohm |
| 50 V | 50 V | 40 V | 83 Ohm |
| 8 Ohm | 15.5 V | 13 V | 8 Ohm |

LBB 1212/00

| tap: | output (mains) | output (DC) | rated load |
|-------|----------------|-------------|------------|
| 100 V | 100 V | 80 V | 164 Ohm |
| 70 V | 70 V | 55 V | 81 Ohm |
| 50 V | 50 V | 40 V | 41 Ohm |
| 8 Ohm | 22 V | 18 V | 8 Ohm |

SQ10 AMPLIFIERS

LBB 1213/00

| tap: | output (mains) | output (DC) | rated load |
|-------|----------------|-------------|------------|
| 100 V | 100 V | 80 V | 83 Ohm |
| 70 V | 70 V | 55 V | 41 Ohm |
| 50 V | 50 V | 40 V | 21 Ohm |
| 8 Ohm | 31.1 V | 24.6 V | 8 Ohm |

LBB 1216/00

| tap: | output (mains) | output (DC) | rated load |
|-------|----------------|-------------|------------|
| 100 V | 100 V | 85 V | 333 Ohm |
| 70 V | 70 V | 60 V | 163 Ohm |
| 50 V | 50 V | 40 V | 83 Ohm |

LBB 1217/00

| tap: | output (mains) | output (DC) | rated load |
|-------|----------------|-------------|------------|
| 100 V | 100 V | 80 V | 164 Ohm |
| 70 V | 70 V | 55 V | 83 Ohm |
| 50 V | 50 V | 40 V | 41 Ohm |

- Total harmonic distortion at rated output power -20 dB at 1 kHz:
< 3%

- Tone controls:

Bass: range +/- 8 dB min. at approx. 100 Hz
Treble: range +/- 8 dB min. at approx. 10 kHz

- Hum and noise: (microphone connected with 600 Ohm, aux connected with 2 kOhm)

all volume controls min: -70 dB w.r.t. rated output power
one microphone max.: -55 dB w.r.t. rated output power
line: -60 dB w.r.t. rated output power

- Mains current consumption:

30 W amplifiers:

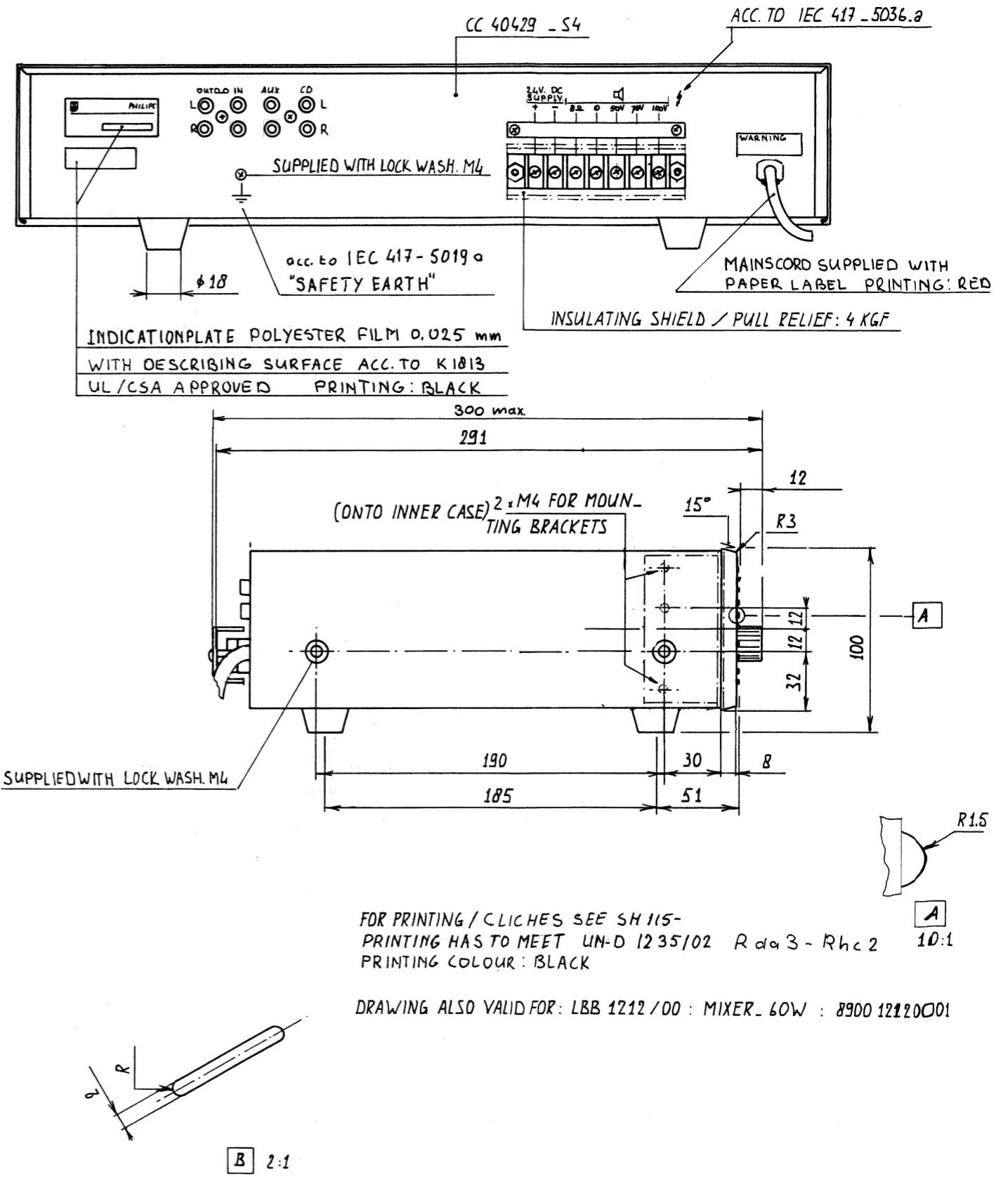
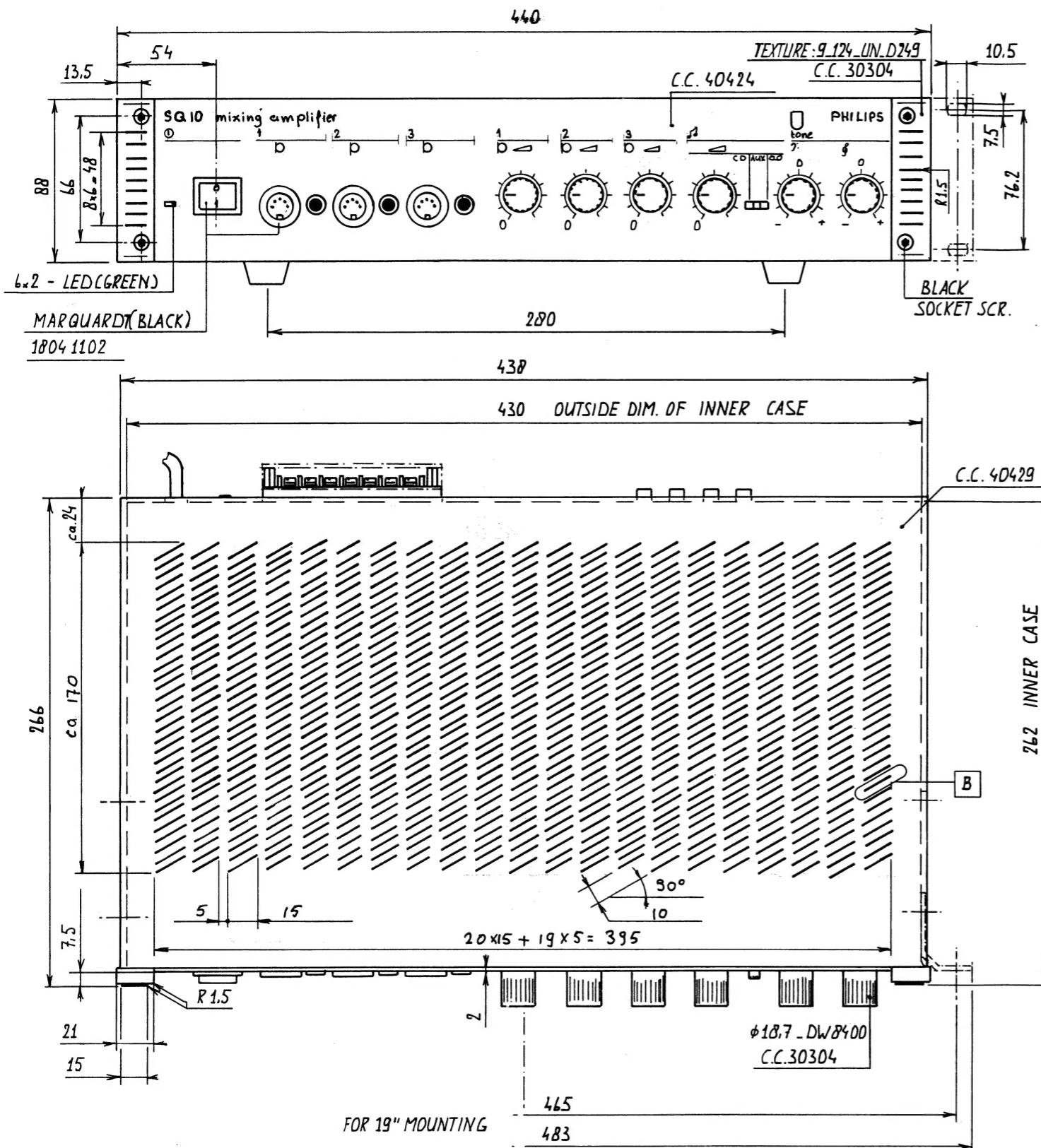
on 220 V AC +10% no load: approx. 0.1 A
while delivering rated output power: approx. 0.5 A

60 W amplifiers:

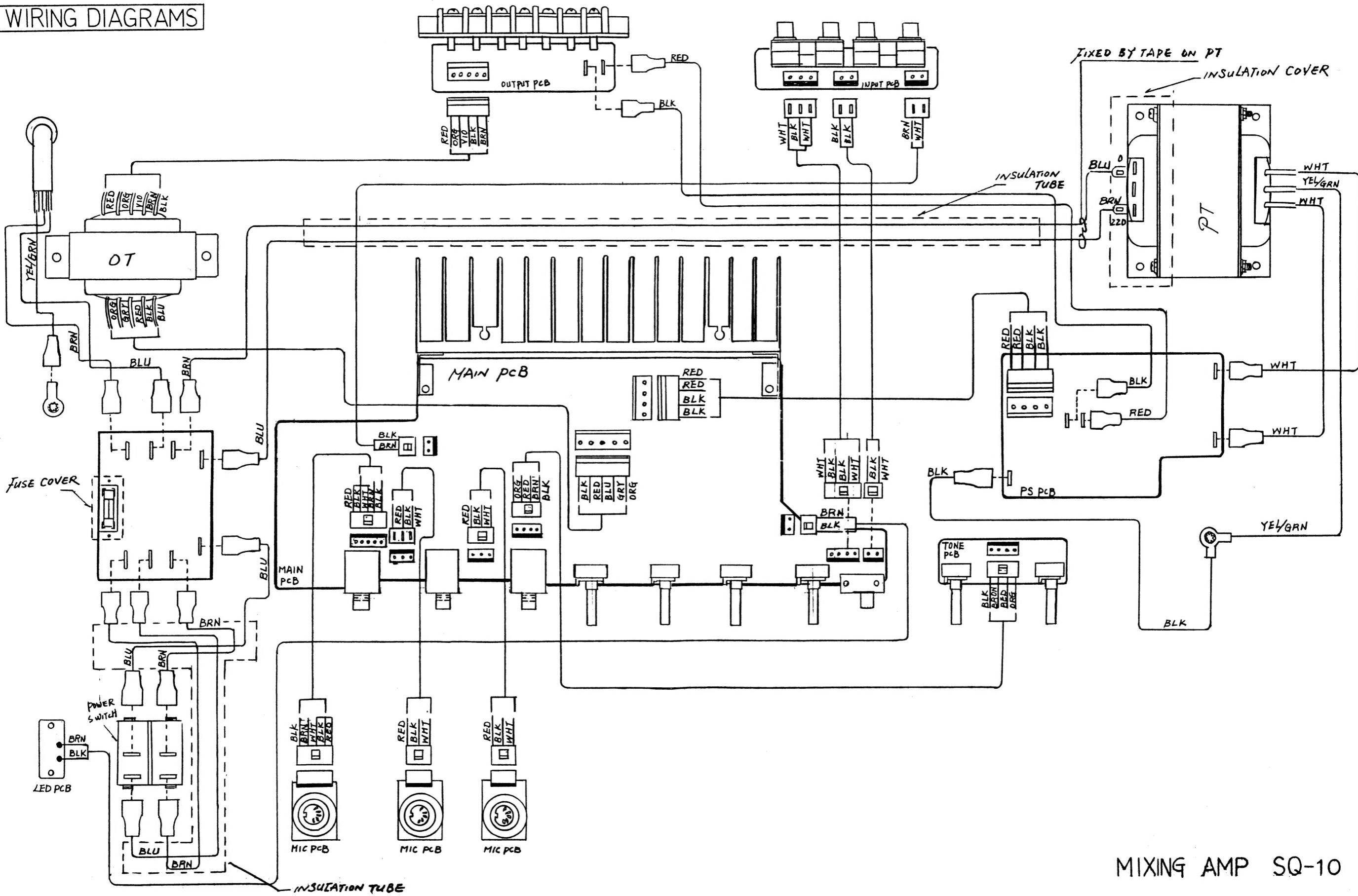
on 220 V AC +10% no load: approx. 0.15 A
while delivering rated output power: approx. 0.8 A

120 W amplifiers:

on 220 V AC +10% no load: approx. 0.2 A
while delivering rated output power: approx. 1.6 A

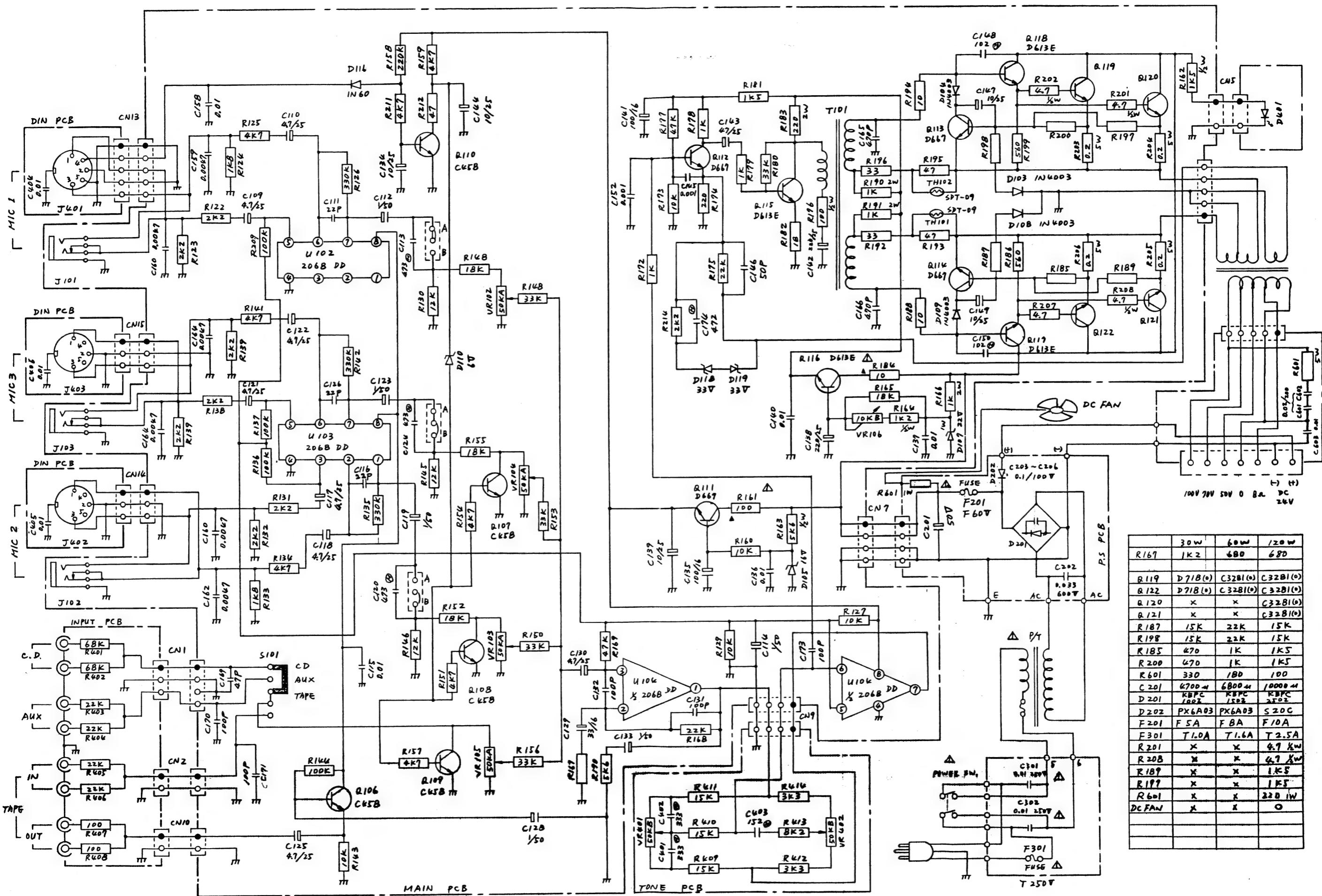


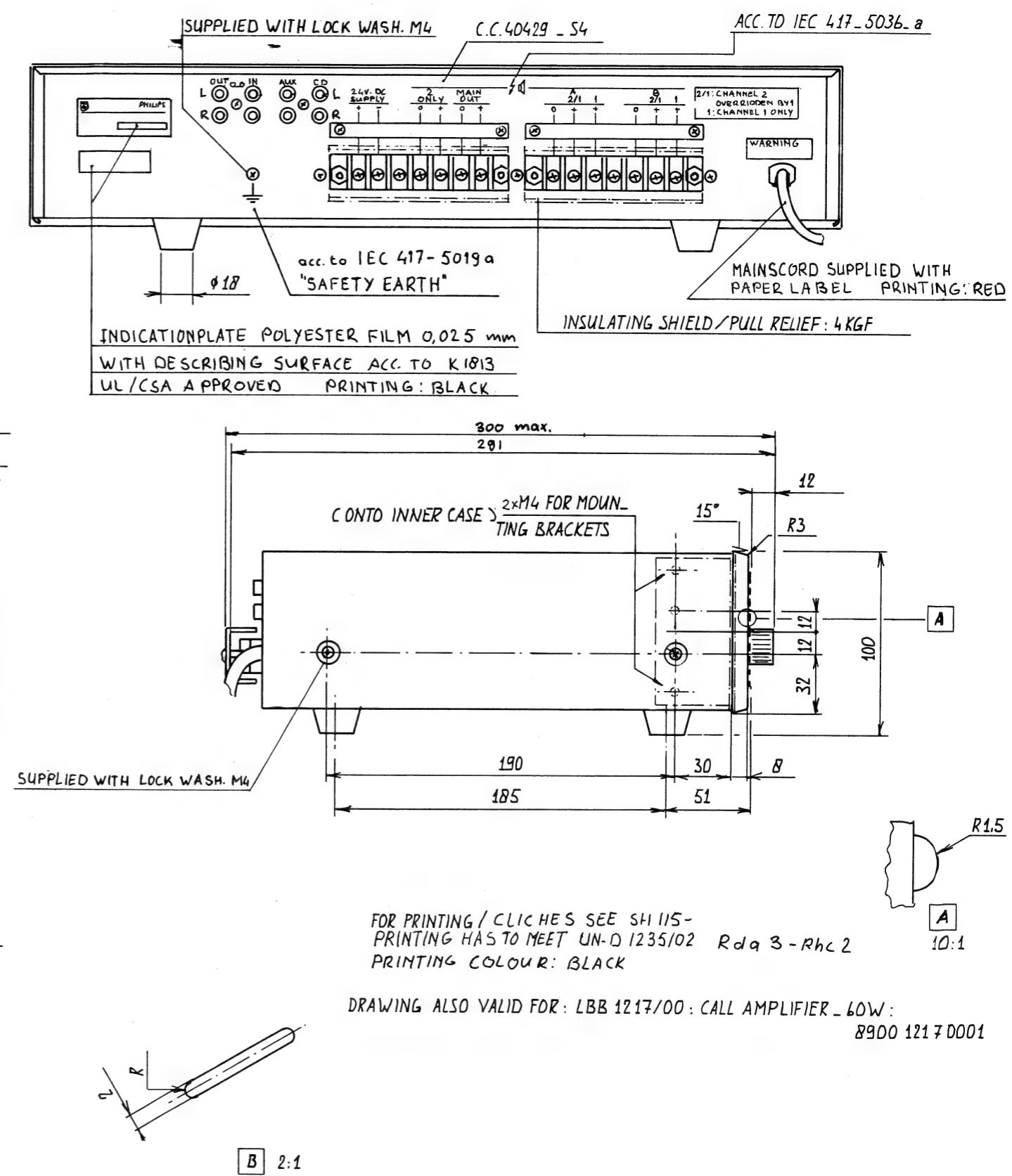
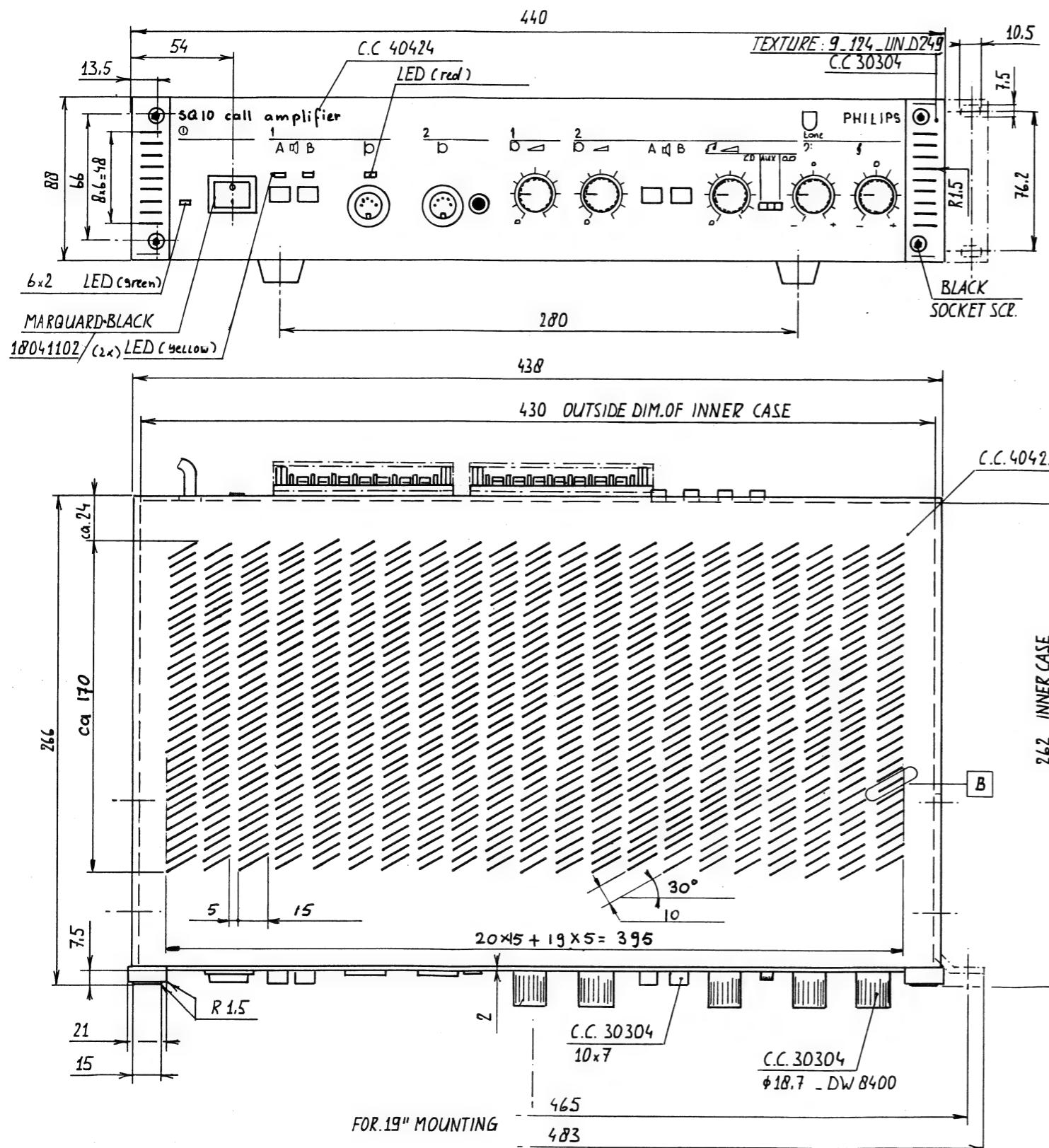
WIRING DIAGRAMS



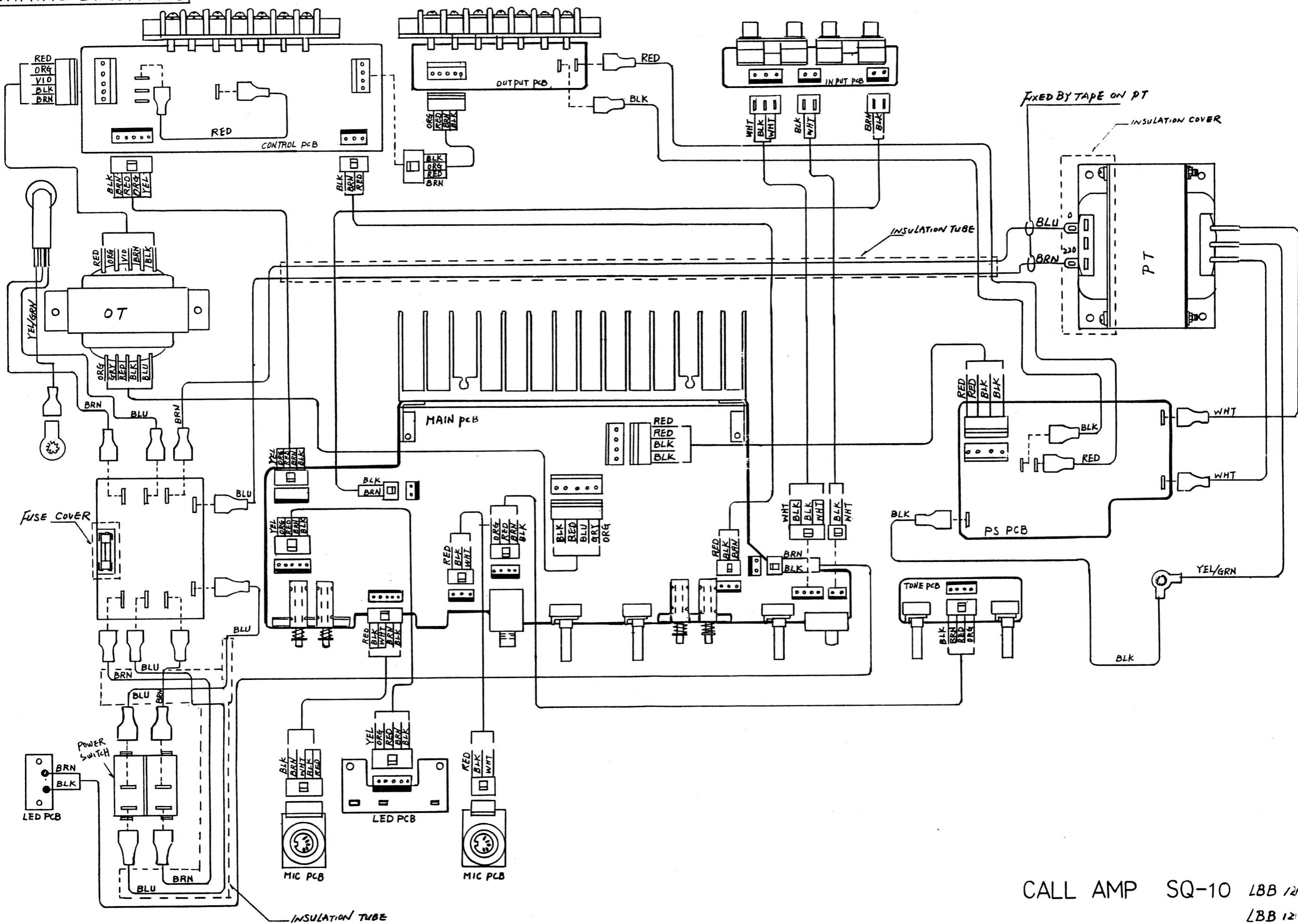
MIXING AMP SQ-10

SQ-10 MIXING AMPLIFIER



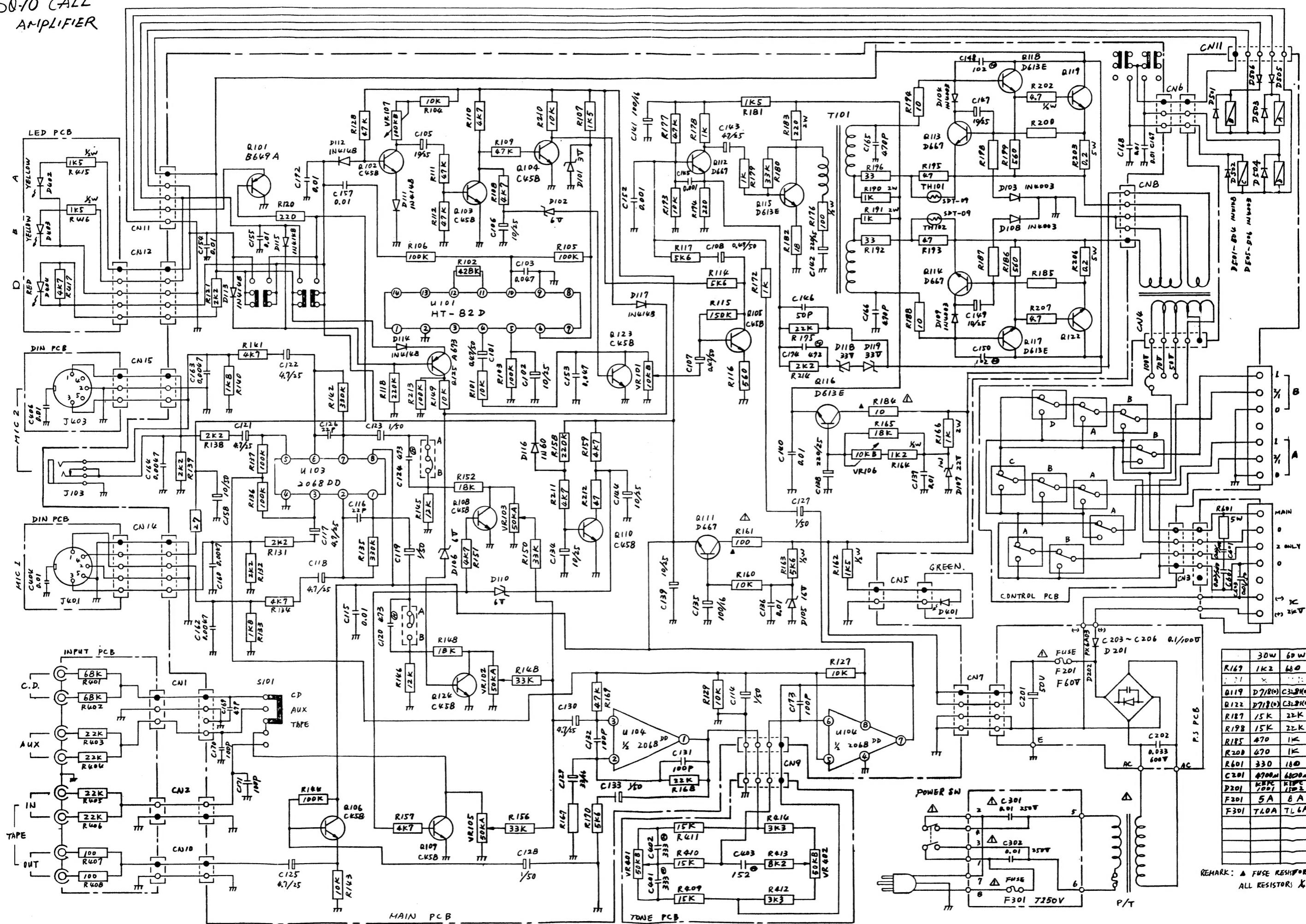


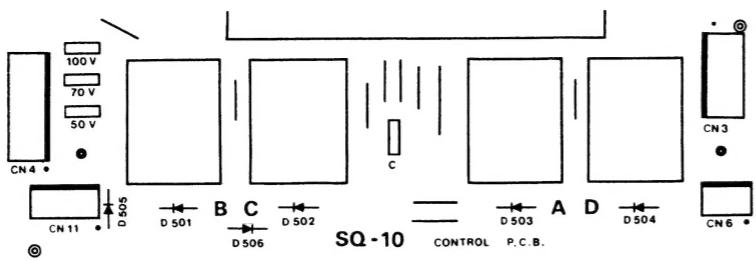
WIRING DIAGRAMS



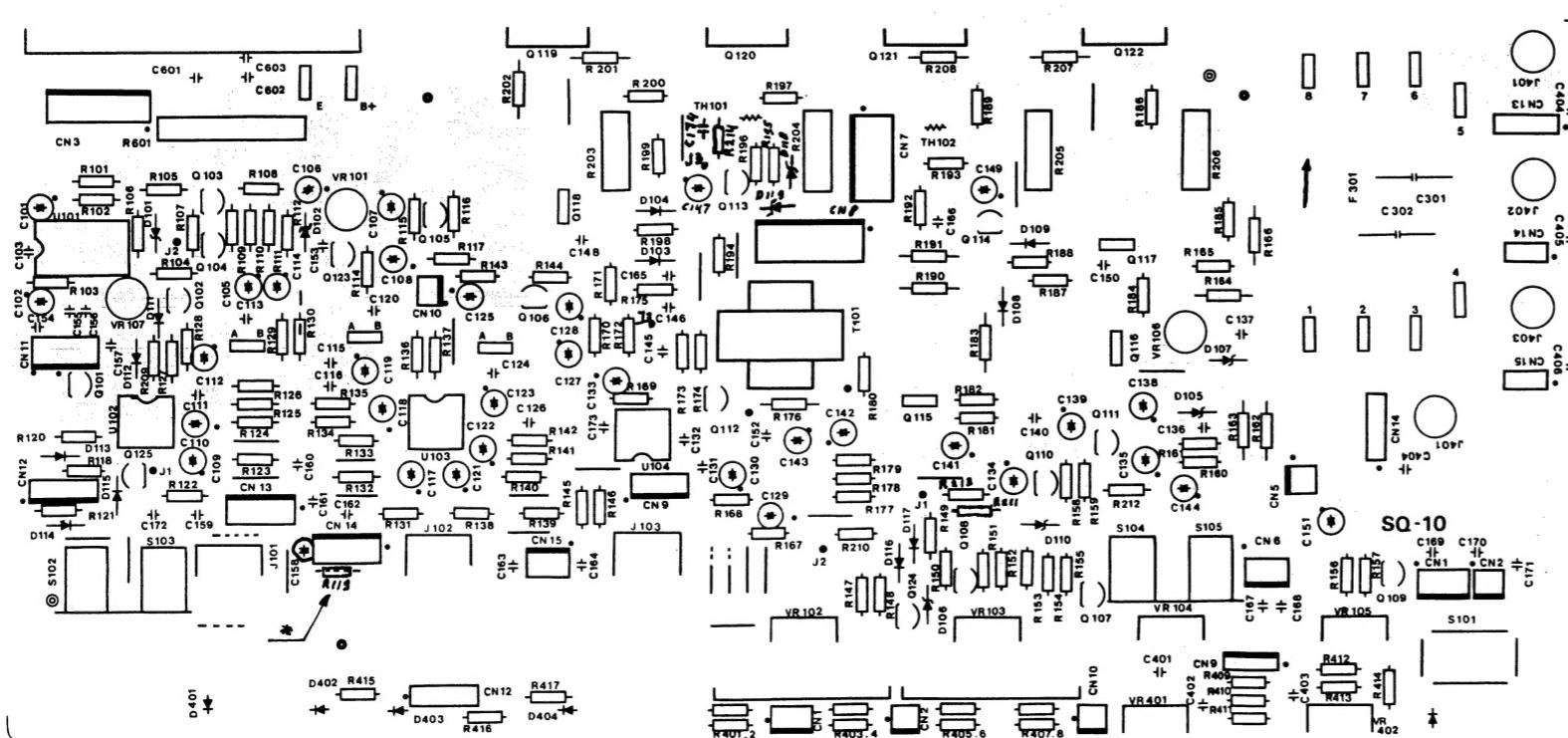
CALL AMP SQ-10 LBB 126/00
LBB 127/00

SQ-10 CALL AMPLIFIER



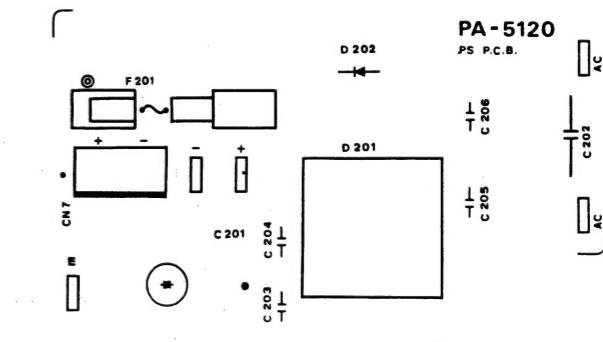


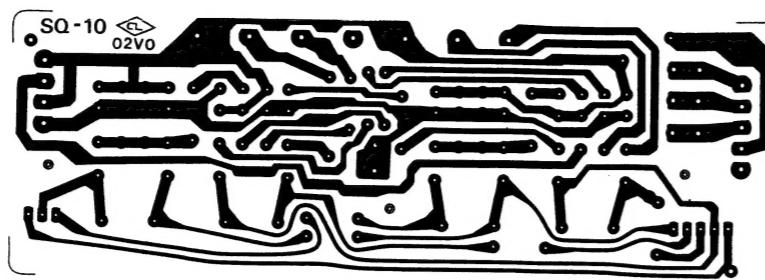
Resistor only valid for:
 Only valid for: LBB 1216/00 Call amp. 30W 8900 121 60001
 LBB 1217/00 Call amp. 60W 8900 121 70001



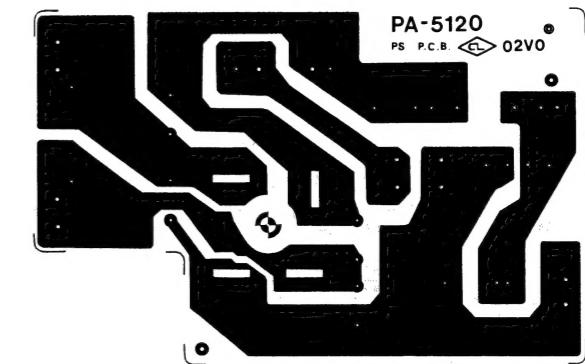
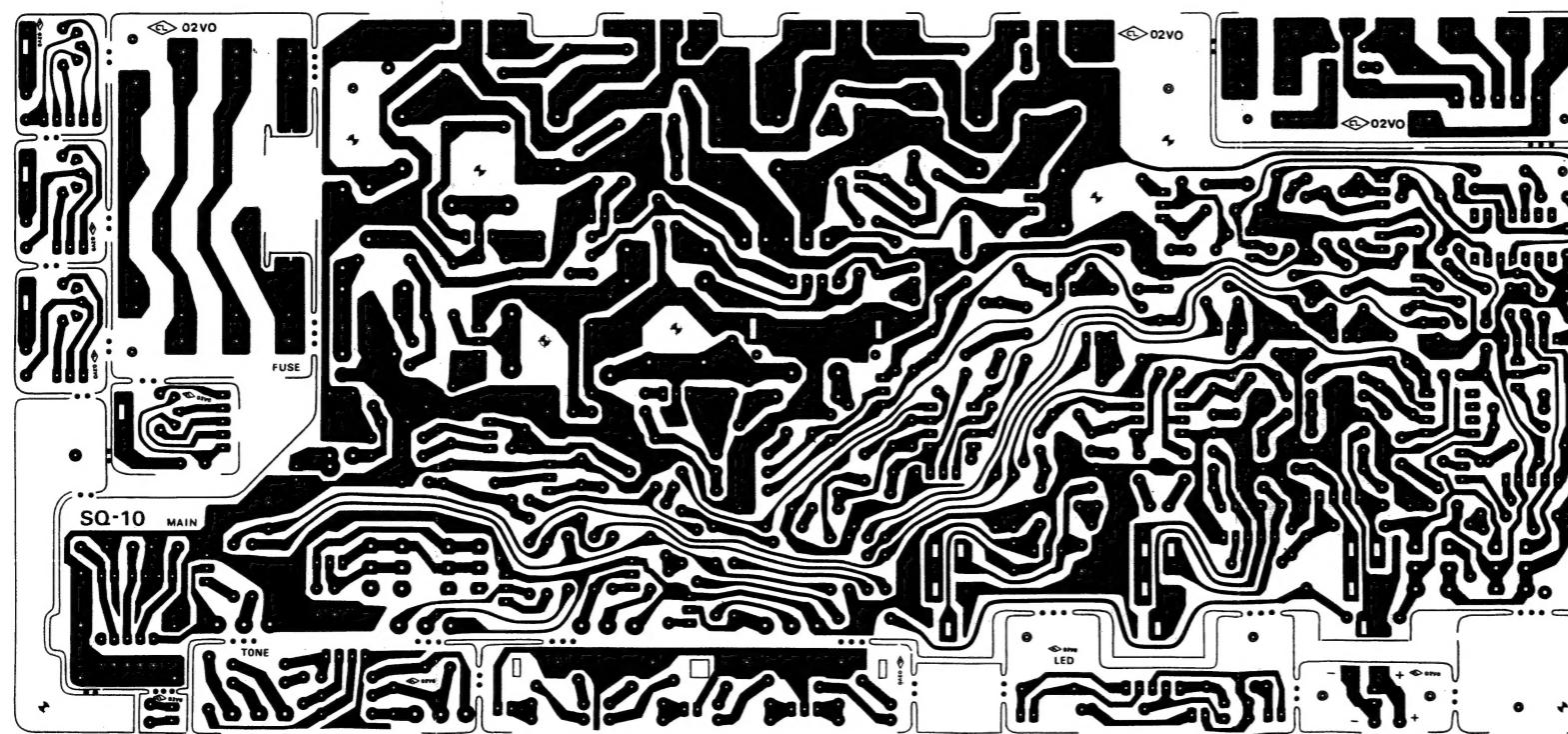
Also valid for: LBB 1212/00 Mixer 60W 8900 121 20001

LBB 1216/00 Call amp. 30W 8900 121 60001
 LBB 1217/00 Call amp. 60W 8900 121 70001





Only valid for LBB 1216/00 Call amp. 30W 8900 121 60001
LBB 1217/00 Call amp. 60W 8900 121 70001



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LBB 1217/00 Call amp 60W 8900 121 70001